



»»» Green Bonds – Made by KfW.

Impact achieved by KfW's green bond issuances
2017 and 2018.

October 2020

KfW

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About KfW

Since it was set up in 1948, KfW Group has been financing and promoting the sustainable development of the economy, society and environment both in Germany and abroad on a statutory basis. This profile is what clearly sets KfW apart from other commercial banks. KfW operates in ways that are competitively neutral and therefore does not intervene in banking competition. KfW Group has set itself the target of supporting sustainable improvement to economic, social and environmental conditions around the world.

As a promotional bank acting on behalf of the German Federal Government and the federal states, KfW Group bears a special responsibility for improving economic, social and environmental living conditions – in Germany and worldwide. KfW's business and sustainability strategy are closely linked. Sustainable approaches on a number of levels are increasingly impacting on our corporate strategy and day-to-day work.

More on sustainability as one of KfW's primary business targets:
<https://www.kfw.de/nachhaltigkeit/KfW-Group/Sustainability/>

»»» Reinforcing the “green” market environment and attracting sustainability-oriented investors since 2014



Tim Armbruster
Treasurer of KfW

Dear investors and interested readers,

KfW, with its many years of experience and excellent reputation as an issuer, continuously provides new impetus on the capital markets. KfW has been issuing green bonds since 2014, offering investors the opportunity to specifically combine the security and liquidity typical of KfW bonds with promoting environmental protection and climate change mitigation. As a pioneer on the market, it is KfW's goal to continue to reinforce the “green” market environment and attract sustainability-oriented investors. All projects financed or co-financed by “Green Bonds – Made by KfW” have the common goal of making a quantifiable contribution to climate protection.

KfW is by far the largest issuer of green bonds in Germany and one of the largest in the world. To respond to evergrowing investor demand, KfW extended its green bond framework in May 2019. As well as for financing projects in the field of renewables, amounts equalling the green bonds' net proceeds are now also used for the KfW programme “Energy-efficient Construction”. Thus, a second standardised loan programme, which makes a quantifiable contribution to climate protection and generates a significant volume, is now financed by “Green Bonds – Made by KfW”.

KfW is a member of the Green Bond Principles and, furthermore, was part of the working group consisting of ten international financial institutions that published the “Harmonized Framework for Impact Reporting”. The publication of these guidelines for impact reporting of environmental and climate protection projects financed with green bonds marks an important milestone in the standardization process and was particularly well received in the market. Needless to say that transparency and state of the art impact reporting are key to “Green Bonds – Made by KfW”.

The following report completes the reporting cycle for “Green Bonds – Made by KfW” issued in 2017 and 2018. Referring to eight green bonds and three taps with aggregate net proceeds of EUR 5.3 billion, it includes all relevant information on the issuances and on the distribution of the net proceeds, and provides information on the actual environmental and social impact achieved in the respective years. The impact is calculated based on the evaluation results of the underlying loan programme “Renewable Energies – Standard” provided by the independent Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW), Germany.

I hope you find this report informative.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'T. Armbruster', written in a cursive style.

Tim Armbruster
Treasurer of KfW

Executive Summary

In 2017 and 2018, KfW made 4,505 loan commitments under its “Renewable Energies – Standard” loan programme, which provides financings for the construction, expansion and acquisition of plants generating power or heat from renewable energy sources.

A volume of EUR 5.2 bn was committed to eligible Green Projects aligned with KfW’s Green Bond Framework 2014.





This report presents the expected impact of these Green Projects by showing a number of core indicators in accordance with the Harmonized Framework for Impact Reporting developed by a group of multilateral development banks including KfW. The report is prepared on a portfolio basis and shows aggregate data for each calendar year.

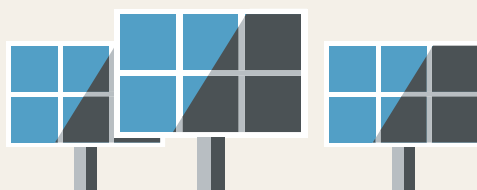
Green Bonds – Made by KfW

2017: **EUR 3,702 million net proceeds**

2018: **EUR 1,605 million net proceeds**

KPIs (accounting for KfW’s financing share):

-  Annual GHG emissions reduced/avoided
2017: **3,526,577 tons CO₂-equiv./a**
2018: **1,581,660 tons CO₂-equiv./a**
-  Annual renewable electricity generation
2017: **5.26 TWh/a**
2018: **2.12 TWh/a**
-  Renewable energy capacity added
2017: **2,496 MWh**
2018: **1,111 MWh**
-  Number of jobs created and/or preserved in person years.
2017: **52,722**
2018: **22,506**



Basic Information

Green Bond Framework applied: KfW Green Bond Framework, July 2014

Reporting period: Calendar years 2017 and 2018

Approach: Portfolio-based impact reporting

Reporting Framework: Harmonized Framework for Impact Reporting

»»» Green Bonds – Made by KfW

Offering investors the opportunity to combine measurable climate protection effects with the safety and liquidity of an investment in KfW bonds.

As one of the world's largest financiers of renewable energy, KfW endeavours to make an active contribution to climate protection through its capital market activities and thus linking its sustainable lending business to the refinancing side. KfW entered the young green bond market as an issuer in 2014. With its high standards regarding transparency and impact evaluation, KfW has set standards in the market and contributed significantly to the important growth the market has experienced since.

Net proceeds from "Green Bonds – Made by KfW" issued in the years 2014 to 2018 were dedicated exclusively to the financing of green projects under KfW's loan programme "Renewable Energies – Standard". This loan programme promotes projects for the use of renewable energy sources such as wind energy, photovoltaic, hydropower and biogas/-mass, and contributes to the environmental objective "climate change mitigation".

This paper reports on the impact of Green Bonds issued in the years 2017 and 2018 and thus solely focuses on the financing of green projects under KfW's loan programme "Renewable Energies – Standard".

External evaluation: green eligibility and impact measurement

KfW's Green Bond Framework was reviewed by the international research institute CICERO in 2015. The Green Bond Framework 2014 has been awarded a Dark Green shading. CICERO confirmed the Green Bond Framework to be in line with the Green Bond Principles.

Cicero shades of Green

- Dark green is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future.
- Medium green is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet.
- Light green is allocated to projects and solutions that are climate friendly but do not by themselves represent or contribute to the long-term vision (e.g. energy efficiency in fossil based processes).
- Brown is allocated to projects that are irrelevant or in opposition to the long-term vision of a low carbon and climate resilient future.



Since 2019, net proceeds are also dedicated to the financing of new energy-efficient buildings in Germany under the promotional programme "Energy-efficient construction". Thus, a second standardized promotional programme which makes a clearly measurable contribution to climate action and generates substantial lending volumes is funded through "Green Bonds – Made by KfW". Cicero evaluated the new framework in their Second Opinion 2019:

- **KfW Green Bond Framework 2019:** Medium Green
- **Renewable Energy:** Dark Green
- **Energy Efficiency:** Light to Medium Green
- **Governance:** Excellent
- In line with **Green Bond Principles**

»»» Reporting aligned with the Green Bond Principles

Creating investment opportunities with transparent green credentials.

KfW reports the amount and the distribution of disbursements under the “Renewable Energies – Standard” loan programme on a yearly basis. After ZSW has evaluated the actual impact of the funded projects for each year, KfW discloses its respective impact report. The impact analysis for “Green Bonds – Made by KfW” is based on the standards set out by the International Capital Markets Association (ICMA) – the Green Bond Principles – and the related Harmonized Framework for Impact Reporting. The Green Bond Principles have four core components:

- 1. Use of Proceeds (Eligibility criteria)**
- 2. Process for Project Evaluation and and Selection (Due diligence procedures)**
- 3. Management of Proceeds (Allocation procedures)**
- 4. Reporting (on the environmentally sustainable impact)**

KfW’s impact reporting is generated on an aggregated portfolio basis. Immediately after the inflow of the net proceeds from a green bond issuance, an amount equivalent to the green bond net proceeds in euro is allocated to an internal account which in turn is reduced by amounts matching requests for disbursement under the loan programme in the same calendar year as that of the issuance. Net proceeds from a green bond are considered to be fully allocated once the cumulated disbursement requests from the promotional programme equal the net proceeds from the issuance. The volume-weighted average maturity of “Green Bonds – Made by KfW” for each calendar year does not exceed the respective prior year’s average duration of loan commitments under the “Renewable Energies – Standard” programme.

ZSW’s impact evaluation is the basis for this report and is publicly accessible on KfW’s website:

Bickel, P., Kelm, T., Edler, D.: **Assessment of environmental and social impacts of the KfW loan programme “Renewable Energies – Standard” for the years 2017 and 2018.** Evaluation commissioned by KfW Group, February 2020

https://www.kfw.de/PDF/Download-Center/Konzerntemen/Research/PDF-Dokumente-alle-Evaluationen/Evaluation_Summary_KfW_EE_2017-and-2018.pdf



As one of the world's largest financiers of renewable energy, KfW endeavours to make an active contribution to climate protection through its capital market activities. >>>

Comprehensive criteria for environmental and social eligibility assessment under the loan programme “Renewable Energies – Standard”.

KfW’s promotional loan programme “Renewable Energies – Standard”

Eligibility and exclusions

Plants complying with the requirements defined by the **German Renewable Energy Sources Act** (Erneuerbare-Energien-Gesetz – EEG 2017) are basically eligible for financings under the “Renewable Energies – Standard” loan programme.

However, the following plants and projects are excluded:

- Hydropower plants with an installed power exceeding 20 MW.
- Used plants that have been connected to the power grid for more than 12 months and such that were financed by KfW.
- Plants for the generation of power or heat using fossil fuels as well as plants for heat storage that are directly linked to power or heat generated on the base of fossil fuels.
- Projects using any form of trust structures or selfdealing.
- Equipment for the use of nuclear power.

What for?

The programme provides financings for the construction, expansion and acquisition of plants generating power or heat from renewable energy sources that comply with the requirements defined by the German Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz – EEG 2017). This includes especially wind energy, solar energy (photovoltaics), hydropower, biomass, biogas and geothermal energy. Furthermore, grids and plants for the storage of heat are supported.

For whom?

Funds are available for private individuals and not-for-profit organisations which feed the generated electricity/heat into the grid, at least in part, self-employed professionals and farmers, as well as German and non-German enterprises majority-owned by private individuals or municipalities. Investments outside Germany are eligible for German companies, German citizens and joint ventures with a substantial German stake.

Up to 100% of the investment costs are eligible for financing with a cap at EUR 50 million.

Selection process

The project selection is conducted by KfW’s lending department. First, project eligibility is assessed according to the guidelines of the “Renewable Energies – Standard” loan programme ([Link – German only](#)).

In addition, all transactions are screened according to KfW’s environmental and social risk management framework ([Link – German only](#)).



KfW conducts comprehensive initial assessment of the projects’ environmental and social impact:

- In the case of investments in countries where an extensive set of rules and regulations for environmental and social issues is in place and enforced, there is no requirement to appraise the environmental impact and social aspects of a measure. This applies to EU countries and generally to all other OECD countries outside the EU.
- With regard to investments in all other countries, KfW’s lending department assesses whether the planned measure may have any negative environmental or social impact.
- If a project is deemed to be environmentally or socially relevant, KfW’s Competence Centre for Environment and Sustainability examines the environmental and social effects in more detail. Basically, projects must comply with national regulation of the investee country, including its environmental and social requirements. **However, they must be at least equivalent to the internationally recognised environmental and social standards, such as those formulated in the Environmental, Health and Safety Guidelines of the World Bank Group (EHS Guidelines) and the ILO (International Labour Organization) core labour standards.**

Contributing to the United Nations Sustainable Development Goals.

KfW Group's contribution to the SDGs

In order to adopt a pioneering role in the area of sustainability, KfW has been assigning almost all of its annual new business to the 17 SDGs since 2019 as part of its SDG mapping and therefore transparently discloses its SDG contributions in the financial sector. The SDG mapping for 2019 reveals that new KfW commitments cover all 17 SDGs.



“Green Bonds – Made by KfW” issued between 2014 and 2018 contribute to the SDGs 7 “Affordable and Clean Energy” and 13 “Climate Action” and thus contribute to shifting the world on a sustainable path.

Project examples



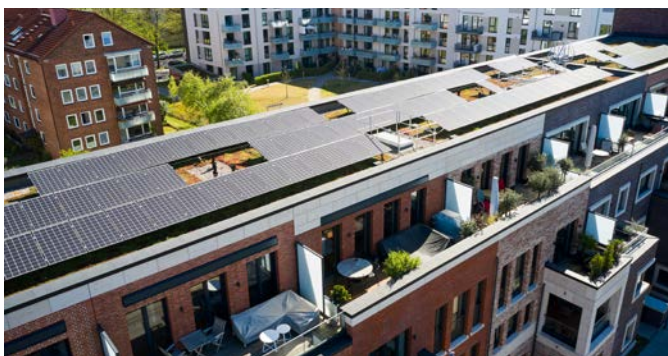
Wind farm “Dretzen II” by NOTUS energy in Dretzen, Brandenburg (2017)

Total project cost: EUR 22.5 million
Thereof KfW funds: 19.7 million
Annual electricity production: 34,000 MWh

With the revised Green Bond Framework 2019 a second standardized promotional programme which makes a clearly measurable contribution to climate action and generates substantial volumes is funded through “Green Bonds – Made by KfW” issued 2019 and after. KfW loan programme “Energy-efficient Construction” provides financing for the construction of new energy-efficient residential buildings in Germany. These new constructions are required to use at least 25% less primary energy compared to buildings meeting the requirements of the current German energy saving ordinance for new constructions.



“Green Bonds – Made by KfW” issued under the new framework now also contribute to the SDG 11 “Sustainable Cities and Communities”



22 townhouses in Hamburg built in 2019

Architects: Arge Mudlaff+Otte, Studio Witt, MoRe Architekten
Energy advisor: Paul Dudda, DES GmbH
Living space: 5,700 square meters
Plot size: 5,110 square meters
Total project cost: EUR 28 bn, thereof KfW funds: EUR 2,048 mn
Energy saving: heatpump, biogas block heat and power plant, waste heat recovery, photovoltaics, certified building materials

2017

Issuance Summary and Use of Proceeds

In 2017, KfW issued seven “Green Bonds – Made by KfW” and thereby raised net proceeds in the amount of EUR 3.7 billion, which were fully allocated.

In the same period, KfW received requests for disbursements under the “Renewable Energies Programme – Standard” in an amount of EUR 4.1 billion. Thus, an amount equal to the net proceeds from all KfW green bonds issued in 2017 was fully allocated as of December 31, 2017.

The majority of the funded projects were for the use of wind energy (86%) and solar energy (12%). 73% of all projects financed under the loan programme “Renewable Energies – Standard” were located in Germany. The remaining 27% were located in France, Finland, Norway, Ireland, Denmark, Japan, the UK, Italy, Sweden, the Netherlands and Croatia.

Net proceeds in foreign currencies were converted into EUR at the ECB’s exchange reference rate on the respective pricing date.

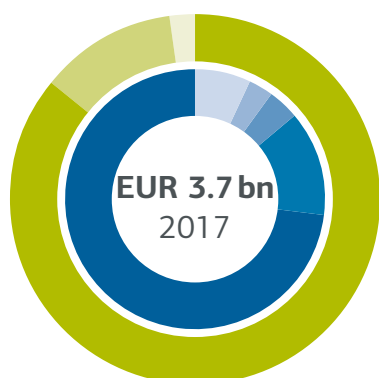
7 Green Bonds
in 4 currencies
(EUR, USD, GBP, AUD)

EUR 3.7 billion
net proceeds

4.7%
of KfW’s total funding
(EUR 78.2bn)

Full Allocation
Disbursements in an amount
of EUR 4.1bn

KfW Green Bond	GBP 2015/2020 2nd Tap	EUR 2017/2025	AUD 2015/2020 1st Tap	USD 2017/2020 No. 1	USD 2017/2020 No. 2	USD 2017/2022	AUD 2015/2020 2nd Tap
ISIN	XS1268337844	XS1612940558	AU000KFWHAC9	US48245ACK51	US48245ACL35	US500769HP20	AU000KFWHAC9
Volume	GBP 250mn	EUR 2bn	AUD 200mn	USD 150mn	USD 200mn	USD 1bn	AUD 200mn
Net proceeds	GBP 261,425,856.16	EUR 1,982,760,000	AUD 201,290,000	USD 150,000,000	USD 200,000,000	USD 995,590,000	AUD 202,314,000
Net proceeds (in EUR)	EUR 304,976,500.42	EUR 1,982,760,000	EUR 135,887,396.21	EUR 127,866,337.06	EUR 167,996,640	EUR 847,960,139.68	EUR 134,795,122.93
Maturity	24 Feb 2017 – 5 Jun 2020	16 May 2017 – 30 Jun 2025	8 Aug 2017 – 2 Jul 2020	17 Aug 2017 – 17 Aug 2020	28 Sep 2017 – 28 Sep 2020	5 Oct 2017 – 29 Sep 2022	25 Oct 2017 – 2 Jul 2020
Coupon	1.625%	0.250%	2.400%	1.660%	1.790%	2.000%	2.400%
Format	Note Programme	Note Programme	Kangaroo	US MTN/SEC reg.	US MTN/SEC reg.	Global/SEC reg.	Kangaroo



Requests for disbursements under the eligible loan programme

- Wind energy: 86%
- Solar energy: 12%
- Other renewable energy: 2%
- Germany: 73%
- France: 13%
- Finland: 4%
- Denmark: 3%
- Other OECD: 7%

2017 Impact

The independent non-profit research institute Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW) evaluated the environmental and social impact of projects financed under KfW's programme "Renewable Energies – Standard" based on new commitments in 2017.

In 2017, the volume of commitments under KfW's loan programme "Renewable Energies – Standard" totalled almost EUR 3.6 billion and triggered investments of approx. EUR 5.0 billion – representing an average share of KfW financing amounting to 72%. Thereof, EUR 1.1 billion and EUR 1.6 billion, respectively, were attributable to renewable energy plants built outside Germany. The average investment per commitment amounted to EUR 1.8 million.

Installed electrical power supported in 2017

Plant type	MWel
Biogas	8.3
Photovoltaic energy	510.3
Hydropower	0.5
Wind energy onshore	2,849.9
Total	3,368.9
Annual electricity production	4.7 TWh



Commitments under KfW's programme "Renewable Energies – Standard" in 2017

Number of loan commitments	2,736
Volume of loan commitments (EUR mn)	3,576
Thereof outside Germany (EUR mn)	1,052
Investments financed (EUR mn)	4,998
Thereof outside Germany (EUR mn)	1,649
Average loan volume per commitment (EUR)	1,306,822
Average investment financed per commitment (EUR)	1,826,580
Average share of financing	72%

In 2017, KfW's programme "Renewable Energies – Standard" co-financed plants with a total electrical power of approx. 3.4 GWel, of which 67% were attributable to plants built in Germany and the remaining 33% to plants built outside Germany. The table provides a detailed picture of the installed electrical power by plant type.

The estimated annual electricity production of the supported plants built in Germany amounts to 4.7 TWh over the twenty-year-lifetime of the plants. The plants financed outside Germany produce an estimated 2.4 TWh of electricity per year.

The projects co-financed under KfW's "Renewable Energies – Standard" programme in 2017 had the following overall environmental and social impact:

	Germany
Annual greenhouse gas emissions reduced/avoided due to plants supported	3.19 million tons CO ₂ -equivalents p.a.
Annual savings in energy imports and costs for fossil fuels	198.90 EUR million p.a.
Employment effects: jobs created and/or preserved	47.690 person years
Annual savings in external costs (e.g., by avoiding environmental and health damage)	623.10 EUR million p.a.

The majority of the funded projects were for the use of wind energy and solar energy. >>>

2018

Issuance Summary and Use of Proceeds

In 2018, KfW issued four “Green Bonds – Made by KfW” and thereby raised net proceeds in the amount of EUR 1.6 billion, which were fully allocated.

In the same period, KfW received requests for disbursements under the “Renewable Energies Programme – Standard” in an amount of EUR 1.6 billion. Thus, an amount equal to the net proceeds from all KfW green bonds issued in 2018 was fully allocated as of December 31, 2018.

The majority of the funded projects were for the use of wind energy (83%) and solar energy (16%). 47% of all projects financed under the loan programme “Renewable Energies – Standard” were located in Germany. The remaining 53% were located in France (26%), Sweden (10%), the Netherlands and Ireland (4% each), Denmark and Finland (3% each), as well as Italy, Japan and Great Britain (3% in total).

Net proceeds in foreign currencies were converted into EUR at the ECB’s exchange reference rate on the respective pricing date.



4 Green Bonds
in 2 currencies (EUR, SEK)



EUR 1.6 billion
net proceeds

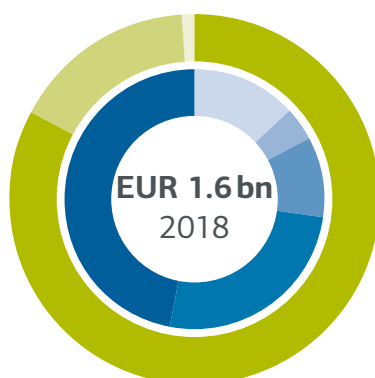


2%
of KfW’s total funding
(EUR 76.1 bn)



Full Allocation
Disbursements in an amount
of EUR 1.6bn

KfW Green Bond	SEK 2018/2023	EUR 2018/2028	SEK 2018/2028	EUR 2018/2026
ISIN	XS1756683659	SSD010000894	XS1764081110	XS1897340854
Volume	SEK 1bn	EUR 2mn	SEK 5bn	EUR 1bn
Net proceeds	SEK 1bn	EUR 2mn	SEK 4,970,850,000	USD 1,494,360,000
Net proceeds (in EUR)	EUR 101,803,966.28	EUR 2mn	EUR 508,147,368.21	EUR 992,940,000
Maturity	23 Jan 2018 – 23 Jan 2023	31 Jan 2018 – 31 Jan 2028	2 Feb 2018 – 2 Feb 2028	24 Oct 2018 – 28 Sep 2026
Coupon	0.460%	0.870%	1.375%	0.500%
Format	Note Programme	SSD	Note Programme	Note Programme



Requests for disbursements under the eligible loan programme

- Wind energy: 83%
- Solar energy: 16%
- Other renewable energy: 1%
- Germany: 47%
- France: 26%
- Sweden: 10%
- Netherlands: 4%
- Other OECD: 13%

2018 Impact

The independent non-profit research institute Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW) evaluated the social and environmental impact of projects financed under KfW's programme "Renewable Energies – Standard" based on new commitments in 2018.

In 2018, the volume of commitments under KfW's loan programme "Renewable Energies – Standard" totalled EUR 1.6 billion and triggered investments of EUR 2.3 billion – leading to an average share of financing of 70%. Thereof, some EUR 0.9 billion and EUR 1.4 billion, respectively, were attributable to renewable energy plants built outside Germany. The average investment per commitment amounted to EUR 1.3 million.

Installed electrical power supported in 2018

Plant type	MWel
Biogas	1.7
Photovoltaic energy	327.9
Hydropower	10.2
Wind energy onshore	1,284.5
Total	1,624.2
Annual electricity production	1.4 TWh



In 2018, more than 13,000 jobs were created and/or preserved by projects co-financed under the „Renewable Energies – Standard” programme. >>>

Commitments under KfW's programme "Renewable Energies – Standard" in 2018


Number of loan commitments	1,769
Volume of loan commitments (EUR mn)	1,632
Thereof outside Germany (EUR mn)	898
Investments financed (EUR mn)	2,346
Thereof outside Germany (EUR mn)	1,372
Average loan volume per commitment (EUR)	922,708
Average investment financed per commitment (EUR)	1,325,920
Average share of financing	70%

In 2018, KfW's programme "Renewable Energies – Standard" co-financed plants with a total electrical power of around 1.6 GWel, of which 42% were attributable to plants built in Germany and 58% to plants built abroad. The table provides a detailed picture of the installed electrical power by plant type.

The estimated annual electricity production of the supported plants built in Germany amounts to 1.4 TWh over the twenty-year-lifetime of the plants. The plants financed outside Germany produce an estimated 1.7 TWh of electricity per year.

The projects co-financed under KfW's "Renewable Energies – Standard" programme in 2018 had the following overall environmental and social impact:

	Germany
Annual greenhouse gas emissions reduced/avoided due to plants supported	0.96 million tons CO ₂ -equivalents p.a.
Annual savings in energy imports and costs for fossil fuels	62.30 EUR million p.a.
Employment effects: jobs created and/or preserved	13,660 person years
Annual savings in external costs (e.g., by avoiding environmental and health damage)	188.80 EUR million p.a.



KfW is by far the largest issuer of green bonds in Germany and one of the largest in the world. >>>

Methodology and Environmental and Social Impact

Transparent calculation of the impact of “Green Bonds – Made by KfW” issued in 2017 and 2018.

KfW calculates the impact of its green bonds based on the evaluation of the underlying promotional programme “Renewable Energies – Standard”. The impact is quantified for the supported plants built in Germany and calculated per EUR 1 million investment in “Green Bonds – Made by KfW”. Impact data for projects located outside Germany are not available. The underlying assumption is that projects located outside Germany deliver the same impact as projects located in Germany.

The following table shows the impact of per EUR 1 million investment in the projects co-financed under KfW’s “Renewable Energies – Standard” programme. Thus, an investment of EUR 1 million in “Green Bonds – Made by KfW” issued in 2017 and in 2018 lead to 953 and 986 tons of GHG emission reductions (CO₂e) per annum. It also accounts for yearly savings in energy imports and fossil fuel costs in an amount of EUR 59,393 and EUR 63,956 respectively. 14 jobs (in person years) could be created or secured in both reporting years per EUR 1 million invested. The yearly savings in external costs amount to EUR 186,061 per EUR 1 million investment in 2017 and EUR 193,820 in 2018.

Impact of EUR 1 million investment

	2017	2018
Greenhouse gas emissions reduced/avoided (CO ₂ -equivalents) per annum	953 tons	986 tons
Savings in energy imports and fossil fuel costs per annum	EUR 59,393	EUR 63,956
Number of jobs created and/or secured	14 person years	14 person years
Savings in external costs per annum	EUR 186,061	EUR 193,820

»»» Environmental and Social Impact per Green Bond

Actual environmental and social impact related to each green bond issued in 2017 and 2018.

The following tables provide the actual environmental and social impact achieved by each KfW green bond issued in 2017 and 2018. The impact is calculated on the basis of the evaluation results for the underlying loan programme “Renewable Energies – Standard” as provided by ZSW, and accounts for KfW’s financing share in the respective year.

Impact of “Green Bonds – Made by KfW” issuances in 2017

KfW Green Bond	GHG emissions reduced/avoided (CO ₂ -equivalents) per annum	Savings in energy imports and fossil fuel costs per annum	Number of jobs created and/or preserved	Savings in external costs per annum
GBP 2015/2020 2nd Tap	290,506 tons	EUR 18,113,358	4,343 person years	EUR 56,744,262
EUR 2017/2025	1,888,681 tons	EUR 117,761,344	28,235 person years	EUR 368,914,496
AUD 2015/2020 1st Tap	129,440 tons	EUR 8,070,711	1,935 person years	EUR 25,283,358
USD 2017/2020 No. 1	121,799 tons	EUR 7,594,319	1,821 person years	EUR 23,790,951
USD 2017/2020 No. 2	160,025 tons	EUR 9,977,763	2,392 person years	EUR 31,257,639
USD 2017/2022	807,726 tons	EUR 50,362,588	12,075 person years	EUR 157,772,392
AUD 2015/2020 2nd Tap	128,399 tons	EUR 8,005,838	1,920 person years	EUR 25,080,128

Impact of “Green Bonds – Made by KfW” issuances in 2018

KfW Green Bond	GHG emissions reduced/avoided (CO ₂ -equivalents) per annum	Savings in energy imports and fossil fuel costs per annum	Number of jobs created and/or preserved	Savings in external costs per annum
SEK 2018/2023	100,330 tons	EUR 6,511,023	1,428 person years	EUR 19,731,638
EUR 2018/2028	1,971 tons	EUR 127,913	28 person years	EUR 387,640
SEK 2018/2028	500,792 tons	EUR 32,499,313	7,126 person years	EUR 98,489,091
EUR 2018/2026	978,567 tons	EUR 63,504,940	13,924 person years	EUR 192,451,568

Installed Electrical Power and Renewable Energy Produced

Actual installed electrical power and electricity production related to each green bond issued in 2017 and 2018.

Based on the evaluation results provided by ZSW, KfW determines the actual installed electrical power and the actual renewable energy produced by the plants supported, attributable to its green bonds issued 2017 and 2018. The numbers are calculated using all plants financed – i.e., plants located in Germany as well as plants located abroad – and account for KfW’s financing share in the respective year.

The table presented on the right-hand side discloses the effect per EUR 1 million investment in “Green Bonds – Made by KfW” in both 2017 and 2018.

The tables below outline the aggregated actual effect attributable to each green bond issued in the reporting period.

Impact of “Green Bonds – Made by KfW” issuances in 2017

KfW Green Bond	Installed energy capacity	Renewable energy produced per annum
GBP 2015/2020 2nd Tap	206 MWel	433 GWhel
EUR 2017/2025	1,337 MWel	2,817 GWhel
AUD 2015/2020 1st Tap	92 MWel	193 GWhel
USD 2017/2020 No. 1	86 MWel	182 GWhel
USD 2017/2020 No. 2	113 MWel	239 GWhel
USD 2017/2022	572 MWel	1,205 GWhel
AUD 2015/2020 2nd Tap	91 MWel	192 GWhel

Impact of “Green Bonds – Made by KfW” issuances in 2018

KfW Green Bond	Installed energy capacity	Renewable energy produced per annum
SEK 2018/2023	70 MWel	135 GWhel
EUR 2018/2028	1 MWel	3 GWhel
SEK 2018/2028	352 MWel	672 GWhel
EUR 2018/2026	688 MWel	1,312 GWhel

Installed electrical power and electricity production per EUR 1 mn investment in “Green Bonds – Made by KfW”

	2017	2018
Renewable energy capacity added in MWel	0.67	0.69
Annual renewable electricity generation in MWhel p.a.	1,421	1,322

Appendix

Impact Data “Green Bonds – Made by KfW”

Issuances in 2017

KfW Green Bonds	ISIN	Coupon p.a.	Maturity	Volume in millions	Net Proceeds in millions EUR	As of 31.12.2017	
						allocated	to be allocated
GBP 2015/2020 2nd Tap	XS1268337844	1.625 %	05. Jun 2020	GBP 250	305	100%	0%
EUR 2017/2025	XS1612940558	0.250 %	30. Jun 2025	EUR 2,000	1,983	100%	0%
AUD 2015/2020 1st Tap	AU000KFWHAC9	2.400 %	02. Jul 2020	AUD 200	136	100%	0%
USD 2017/2020 No. 1	US48245ACK51	1.660 %	17. Aug 2020	USD 150	128	100%	0%
USD 2017/2020 No. 2	US48245ACL35	1.790 %	28. Sep 2020	USD 200	168	100%	0%
USD 2017/2022	US500769HP20*	2.000 %	29. Sep 2022	USD 1,000	848	100%	0%
AUD 2015/2020 2nd Tap	AU000KFWHAC9	2.400 %	02. Jul 2020	AUD 200	135	100%	0%
					3,702	100%	0%

Issuances in 2018

KfW Green Bonds	ISIN	Coupon p.a.	Maturity	Volume in millions	Net Proceeds in millions EUR	As of 31.12.2018	
						allocated	to be allocated
SEK 2018/2023	XS1756683659	0.460 %	23. Jan 2023	SEK 1,000	102	100%	0%
EUR 2018/2028	SSD010000894	0.870 %	31. Jan 2028	EUR 2	2	100%	0%
SEK 2018/2028	XS1764081110	1.375 %	02. Feb 2028	SEK 5,000	508	100%	0%
EUR 2018/2026	XS1897340854	0.500 %	28. Sep 2026	EUR 1,000	993	100%	0%
						100%	0%

Net proceeds in foreign currencies were converted into EUR at the ECB's exchange rate on the respective pricing date.

* SEC registered global bond.

Distribution by energy type		Distribution by region		Estimated environmental and social impact per EUR 1 million (based on pro-rata financing of projects)			
Energy efficiency	Renewable energy	Germany	Other OECD	Annual GHG emissions reduced /avoided in tons CO ₂ e	Annual renewable electricity generation in MWh	Renewable energy capacity added in MWel	Number of jobs created and/or preserved in person years
0%	100%	73%	27%	953	1,421	0.67	14
0%	100%	73%	27%	953	1,421	0.67	14

Distribution by energy type		Distribution by region		Estimated environmental and social impact per EUR 1 million (based on pro-rata financing of projects)			
Energy efficiency	Renewable energy	Germany	Other OECD	Annual GHG emissions reduced /avoided in tons CO ₂ e	Annual renewable electricity generation in MWh	Renewable energy capacity added in MWel	Number of jobs created and/or preserved in person years
0%	100%	47%	53%	986	1,322	0.69	14
0%	100%	47%	53%	986	1,322	0.69	14

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